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IN COOPERATION WITH THE GEOLOGICAL SURVEY OF THE STATE OF MISSISSIPPI,
A. F. CRIDER, DIRECTOR.

CONDITION OF CUT-OVER LONGLEAF PINE LANDS IN MISSISSIPPI.

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INTRODUCTION.

This circular is based on a study of the forest conditions of Mississippi recently made by the United States Forest Service in cooperation with the Mississippi State Geological Survey. It is supplementary to a preliminary report on the condition of cut-over lands in the longleaf pine regions of the State, and corrects and modifies a number of the statements made in that report.

THE LONGLEAF PINE INDUSTRY.

Originally all of the southern part of the State, except where hard woods held their own in the river bottoms, was covered by pure forests of longleaf pine, and for a long time it was practically untouched. The first settlement of the region took place chiefly along the fertile river bottoms. Even with the advent of the railroads lumbering did not, for many years, receive any great impetus, and all cutting was along and close to the main lines and streams. But under the recent great development of the lumber industry, the longleaf pine has been exploited on a gigantic scale. A few lumber companies, seeing the end of their resources already in sight, are reaching even into the most remote and inaccessible localities after a fast diminishing supply; for, at the present rate of cutting, the industry will not last a great many years longer, and even now it is centering in a comparatively few companies that have secured control of large holdings. Within a quarter of a century most of the companies now operating will have exhausted the material that must keep their mills running; some concerns, in fact, look forward to but a few years of operation, and only two companies, which have bought up all the standing timber they can get, claim that they have enough to last forty years. When these companies are forced to leave, it will mean severe loss to them and a hard blow to what is now the foremost industry of the region. To-day Mississippi ranks fifth among all of the States in lumber production, and third in yellow pine cut. In 1906 it produced 13 per cent of all the yellow pine in all of the States, or more than 1½ billions of board feet.

WASTEFUL LUMBERING.

The situation would be critical even if it meant the exhaustion of a great natural resource through close utilization and by good methods of cutting. But inasmuch as cutting has been unusually severe and wasteful, and since fire almost invariably follows lumbering, more than half the longleaf pine land of the State has been converted into a blackened and barren waste. This means that over the larger part of the area there is little or no reproduction of the timber, which, when once gone, will not be replaced by a new growth which should now be coming on; and that immigration has not been fast enough to put the cleared lands under cultivation.

AGRICULTURAL AND FOREST LAND.

Of course much of the land which has been cleared of trees is more valuable as agricultural than as forest land, and where this is the case the passing of the lumber industry will work no hardship. The decline of the lumber industry makes little difference to communities where farming is the chief industry, although every farmer is more or less dependent upon a cheap and convenient wood supply for fuel and fencing, and should permanently maintain his own woodlot as a ready source of timber for all farm needs. And while the raising of field crops is more important than the raising of timber crops, each has its place in the economic development of the State, and the lumber industry furnishes, indirectly, an excellent home market for farm produce. Some land is better fitted for tree growth than for agricultural crops, because it will yield a higher permanent net revenue to its owners and to the State as forest land; it should therefore be held as forest land. Other land gives better returns from farm products, which makes it strictly agricultural; it should therefore be cleared and held as farm land. A comparatively small though annually increasing proportion of the cut-over pine land is being used for agriculture, and it will be many years before all of it is needed. Until it is so needed it should not be allowed to become an unproductive waste through periodic fires that run over it after logging, but should be a good investment to its owners and a source of profit to the State by growing a taxable product. With a stand of pine seedlings, promising a future stand of timber, there would be a definite potential value, promising a constant increase. The better land would, in all probability, yield a crop of poles in from twenty to thirty years, or good saw timber in forty years. It is quite likely that a considerable proportion of the land will not be needed for field crops until after a timber crop has had a chance to mature, so that the latter should be growing until the ground it occupies is needed for the more profitable use. At present the cut-over lands have no timber value, and will remain valueless for lumbering until they are protected by their owner and by the State.

PUBLIC OPINION.

The movement for proper management of forest lands is seldom in advance of public opinion. It is, therefore, necessary that the people of the State awaken to a realization of the potential timber value of the cut-over lands. What appears to be a widespread indifference to the future of the lumber industry, which seems all the more strange in the light of the great importance of the industry to the State, is not so much indifference as it is a fixed belief, based on general observation, that longleaf pine can not be reproduced. The apparent absence of reproduction, however, is due not to the nature of the tree but mainly to repeated fires.

The passing of the lumber business—for it surely will pass if the present attitude toward the cut-over lands persists—will mean the loss of millions in every county, not alone to the lumbermen, but to the counties themselves, for their revenues largely depend on the maintenance of the values, either by cultivation or reforestation, of the cut-over areas. The farmer himself, the man on the ground, is the real loser from the lack of growing timber, and he seems generally apathetic.

When he allows his timber land to revert to waste he deprives himself of material he needs; he loses the income from cross-ties and poles which he should be able to cut from his own land; he deprives his children of a heritage of great value, for it is a foregone conclusion that lumber prices will constantly increase. It would be far better if these lands could be considered as a forest resource permanently, or until they are actually needed for agriculture. Then they would at least be increasing instead of deteriorating in value.

FIRES.

In Mississippi, as everywhere, fire is the scourge of the forest, and is the chief cause of the waste condition of cut-over lands. Its prevention is the chief problem to be met, for unless it is prevented there can be no hope for timber production.

Other agencies have some influence on the lack of reproduction, though they are by no means as destructive as the constant burning. Where hogs roam the woods in large numbers they do great damage, because they not only destroy a great deal of the pine seed, but also dig out many of the seedlings to eat the roots. Another deterrent of pine reproduction is a growth of scrub oak that comes in so thick after logging that it retards new pine growth or, on limited areas, even prevents it.

But fire remains the most powerful enemy to reproduction. As soon as the logs are cut and the lops and tops strewed on the ground, sparks from the logging engines set fire to the brush and the whole logged area is burned. This is only the beginning, for the first fire is followed by others of annual recurrence. These may be started through carelessness, or to clear up the ground or improve grazing, or wantonly, merely to see the fire burn. While a slight fire may not kill outright the young pine that is 3 or 4 years old, the new growth that has but recently started from the ground is invariably killed; and the fires that come again and again, year after year, finally cause all the reproduction to succumb, and every effort of nature to restock the ground with pine is prevented by the fires that are set in the spring.

REPRODUCTION WHEN FIRE IS KEPT OUT.

Where fire is kept out, reproduction of the pine forest is a comparatively simple process. Investigation has shown many restricted areas, in various counties, that are well stocked with pine to-day because the areas have not been burned over. In some of the western counties longleaf pine has borne seed abundantly during the past year. During the warm days of November and December the seed from these trees has germinated throughout the stump-land region. Counts of seedlings made where seed trees were present showed from 12,000 to 15,000 seedlings per acre. Should this one crop alone mature, the future stand of these lands would be assured. But this spring the ground will probably be burned over again, and very few people will ever realize that a future pine forest has been destroyed. One small area was found in one county where fire did not run last year. It was an excellent example of what reproduction would be if fire protection were assured; one-year-old seedlings covered the ground so closely that there was at least one to every square foot.

These facts show that it is perfectly feasible to secure natural reproduction wherever even a very few seed trees are left on the ground, but if present abuses persist, nothing but expensive planting operations can make the denuded lands grow up to pine again.

It is often contended that longleaf will not succeed itself, and that if pine does come in it will be loblolly. In proof of this, the old fields which usually grow up to loblolly are pointed out. It is true that loblolly does come up on abandoned fields, because the soil that has been tilled offers the ideal germinating bed for loblolly pine seed, which is borne prolifically, and because of its lightness, is carried long distances by the wind; but this does not establish the contention.

The reproduction of longleaf is different. This tree bears its seeds in quantity at intervals of from four to eight years, and they are so heavy that they can not be carried far by the wind. Large quantities are eaten by weevils, squirrels, and hogs; yet, where fire and grazing have not been common, the reproduction is satisfactory, and it is not yet a hopeless task to attempt to secure a restocking of cut-over land with longleaf timber, because there are still some trees capable of bearing seed over the greater part of these cut-over areas.

The State has a law that prohibits setting fire in the woods, but it is ineffective because there is no adequate machinery to enforce it, and because the people are not alive to the very serious damage wrought by fire.

A SOLUTION.

The first step in the solution of the problem of waste cut-over longleaf pine lands is to provide a law to prevent fire and a law that shall carry with it adequate provisions for its strict enforcement. This law should provide for—

(1) A State board of forestry, with the governor as chairman, to have general supervision of forest interests of the State, and whose members shall serve without pay. This board should be nonpolitical, as far as possible, and be composed of such men as the head of the State agricultural college and the State geologist.

(2) A State forester, appointed by the board of forestry, who shall have a practical knowledge of forestry and who shall be technically trained. His technical knowledge should be certified by the forest school attended. He should be a member of the State board of forestry, have charge of the county fire wardens and direct them in their work, advise with county supervisors in the care of sixteenth sections and other school lands, and deliver courses of educational lectures on forestry at the farmers' institutes and other similar meetings throughout the State.

The salary should be adequate to secure the services of a competent man, and reasonable and necessary expenses should be allowed him in the discharge of his official duties.

(3) A county fire warden in each county, who shall be appointed by the county board of supervisors on recommendation of the State forester, or by the State forester in case the county supervisors fail to appoint. These wardens should be under the supervision of the State forester, and their duties should be to enforce all forest fire laws of the State, to assist in the arrest and conviction of offenders, and to report fires to the State forester. They should go at once to the scene of any fire, and should be empowered to employ such persons and methods as

in their judgment seems necessary or expedient, to summon all able-bodied male citizens, and to take and use implements, tools, work animals, and other necessary property, and to go upon private land to fight fire. Reasonable compensation should be paid to the persons so summoned, and to the owners of such property for its use and for its injury in such use. Refusal or neglect to obey summons, and refusal to allow property to be so taken or used, should be punishable by fine. The expenses and compensation of the county fire wardens, not to exceed a reasonable sum annually, should be fixed and paid by the county board of supervisors. These county fire wardens should have the same authority to arrest for violation of the fire and forest law as other peace officers.

(4) All the peace officers of a county to be ex-officio fire wardens under the supervision of the county fire warden, with all his powers and duties as above defined, in their respective districts. There should be fire patrol in the danger season where and when ordered by the State forester and a closed season for burning brush, in which the permit of the county fire warden must be had for any such burning. He should specify conditions to secure safety and designate some ex-officio fire warden to be present.

(5) Methods by which gifts of lands could be received and maintained by the State, and by which lands reverting to the State for taxes could be retained and forested when not suited to agriculture. These lands should be forever held as State forests which would be valuable for experimental purposes and as sources of timber supply for the people of the State.

(6) The printing and distribution of fire warnings by the State forester at the expense of the State. These warnings should be posted in conspicuous places by the county fire wardens.

(7) Punishment, by fine, or imprisonment, or both, for setting fire, or causing fire to spread, on land other than their own.

(8) Punishment, by fine, for failure to equip all logging or other engines operating in wood or brush land with spark arresters; also provision for proper official inspection of such engines.

(9) The liability of individuals or corporations for all damages, including the injury to young growth, resulting from fires. The damage to young growth shall be calculated at not less than the expense of artificially planting and cultivating such young growth to the point of development at which the fire occurred. The escape of fire from the premises of the man who started it shall be prima facie evidence of negligence.

(10) Payment into the county treasuries of all fines collected in the enforcement of these laws.

For the enforcement of this act, an appropriation by the State legislature of $3,000 annually would be necessary, divided about as follows:

Salary of State forest warden	$2,000
Expenses of State forest warden	500
Stationery, and printing and distributing fire notices	500

The expenses and compensation of the county fire wardens, to be borne by the counties, should not exceed $200 a year and should be balanced at least in part, by the receipts from fines.

To save expense and the needless duplication of offices, the fire-warden system might be combined with some already existing force; with the

game warden force, as in Tennessee, or with the district constables, and other peace officers, or with both forces, as in Alabama.

The educational benefit resulting from the appointment of county fire wardens should be one of its greatest advantages. The enforcement of the fire law, the posting of notices, and the dissemination of knowledge about forests and fires should bring a realization of the gravity of the situation upon the people. This should result in a united public sentiment against present evils and a hearty cooperation on the part of the citizens.

Approved:
JAMES WILSON,
Secretary of Agriculture.

WASHINGTON, D. C., *April 16, 1908.*

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